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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/510,145	04/19/2005	Mats Sundberg	1734	8647

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EXAMINER	
RALIS, STEPHEN J	
ART UNIT	**PAPER NUMBER**
3742	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/510,145	SUNDBERG ET AL.	
	Examiner	Art Unit	
	Stephen J. Ralis	3742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 November 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4-6 and 8-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4-6 and 8-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 October 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Applicant is respectfully requested to provide a location within the disclosure to support any further amendments to the claims.

Response to Amendments/Arguments

3. Applicant's arguments filed 05 March 2007 have been fully considered but they are not persuasive.

Oath/Declaration

4. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

> The oath or declaration is defective because:
> It does not state that the person making the oath or declaration acknowledges the duty to disclose to the Office all information known to the person to be material to patentability as defined in 37 CFR 1.56.

The "duty to disclose" statement is incorrect. The statement should read –I acknowledge the duty to disclose information which is material to patentability of this application in accordance with Title 37, Code of Federal Regulations Section 1.56. –.

A new oath or declaration with the correct "duty to disclose" statement in compliance with 37 CFR 1.67(a) is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1, 2, 4-6 and 8-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "that material" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claim 1 recites the limitation "the produced material" in line 8. There is insufficient antecedent basis for this limitation in the claim.

Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: the replacing of the bentonite clay in the molybdenum-silicide based heating element.

Claim 1 rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: the relationship between "producing a molybdenum-silicide based heating element" and "forming a

heating element from the produced material"; the relationship between the heating oven and the producing a molybdenum-silicide based heating element; the relationship between "materials $Mo(Si_{1-x}Al_x)_2$ and Al_2O_3", "a molybdenum silicide based heating compositions", and "bentonite clay".

Claim 6 recites the limitation "that material" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 6 recites the limitation "the materials" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claim 6 recites the limitation "the material" in line 5. There is insufficient antecedent basis for this limitation in the claim.

Claim 6 rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: the relationship between the heating oven and the molybdenum-silicide based heating element; the relationship between "materials $Mo(Si_{1-x}Al_x)_2$ and Al_2O_3", "a molybdenum silicide heating compositions", and "bentonite clay".

With respect to claim 1, the examiner further queries applicant to the recitation to "which oxide layer does not peel from the surface of the heating element under thermal cycling of the heating element between room temperature and about 1500°C, whereby heating oven contamination in the form of peeled heating element oxide layer particles in a heating oven containing the heating element is prevented". It is unclear to the

relationship of structural functional language with respect to the recite method. In addition, the examiner further queries applicant to the same recitation in claim 6.

7. The claims are replete with such 35 U.S.C. 112, second paragraph issues. The above rejections are exemplary with respect to all of the 35 U.S.C. 112, second paragraph rejections present in the instant case, and the applicant is required to find and correct *all* 35 U.S.C. 112, second paragraph issues outstanding.

Joint Inventors – Common Ownership Presumed

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

11. Claims 1, 4-6, 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schrewelius (U.S. Patent No. 2,955,145) in view of Schrewelius (U.S. Patent No. 2,992,959) and in further view of Sekhar et al. (U.S. Patent No. 5,420,399).

Schrewelius'145 discloses a molybdenum-silicide based heating element and method of producing (column 2, lines 14-54) containing essentially of molybdenum silicide (column 1, lines 59-42; column 2, lines 1-2, 31-35) and alloys of that material, said method comprising the steps of: producing a heating element material that contains substantially $Mo(Si_{1-x}\ Al_x)_2$ by mixing a molybdenum aluminum silicide $Mo(Si_{1-x}\ Al_x)_2$ with SiO_2 (column 2, lines 31-36; NOTE: when y=0; column 1, lines 71-72), and forming a heating element from the produced material (column 2, lines 14-70). While Schrewelius'145 is silent to the production of Al_2O_3 in addition to the $Mo(Si_{1-x}\ Al_x)_2$, the examiner notes that $Mo(Si_{1-x}\ Al_x)_2$, when combined with SiO_2 and sintered, produces an Al_2O_3 product as will be shown by Schrewelius'959.

With respect to the limitation of claim 6 and "said element comprising *consisting essentially of* the materials $Mo(Si_{1-x}Al_x)_2$ and Al_2O_3", "A consisting essentially of' claim occupies a middle ground between closed claims that are written in a consisting of' format and fully open claims that are drafted in a comprising' format." PPG Industries v. Guardian Industries, 156 F.3d 1351, 1354, 48 USPQ2d 1351, 1353-54 (Fed. Cir. 1998). For the purposes of searching for and applying prior art under 35 U.S.C. 102 and 103, absent a clear indication in the specification or claims of what the basic and novel characteristics actually are, "consisting essentially of" will be construed as equivalent to "comprising." (See, e.g., PPG, 156 F.3d at 1355, 48 USPQ2d at 1355) (see MPEP 2111.03). In the instant case, applicant discloses "the present invention thus relates to a method of producing a heating element substantially of the molybdenum silicide type and alloys of this basic material, and is characterized by producing a material that *substantially contains* $Mo(Si_{1-x}Al_x)_2$ and Al_2O_3 by mixing a molybdenum aluminosilicide $Mo(Si_{1-y}Al_y)_2$ with SiO_2 wherein SiO_2 has a purity of at least 98% (see paragraph 17). The terminology "substantially contains" is an open end disclosure to the composition of the heating element, therefore, the claims are interpreted and disclosed by the specification with "consisting essentially of" as being equivalent to "comprising."

With respect to the further limitations of claims 1, 4-6, 8 and 9, Schrewelius'145 further discloses wherein x lies in the range of 0.4 - 0.6; wherein x lies in the range of 0.45 - 0.55 (i.e. 0.2 – 0.6; column 1, line 69; column 4, claims 1, 3); including the step of partially substituting Re or W in the material $Mo(Si_{1-x} Al_x)_2$ for molybdenum (i.e. W or tungsten; column 1, lines 59-72; column 2, lines 1-2; column 4, claims 1, 3).

Schrewelius'145 discloses a molybdenum-silicide heating element and method of producing except for the product being formed by the method also consisting essentially of (i.e. comprising) Al_2O_3; and the SiO_2 being at least 98% pure and replacing the bentonite clay in molybdenum silicide heating element compositions containing bentonite clay; and the oxide layer not peeling under thermal cycling at about 1500°C, whereby heating oven contamination in the form of peeled heating element oxide layer particles in a heating oven containing the heating element *is prevented*.

Schrewelius'959 teaches a method of producing a molybdenum-silicide-type heating element in which a Al_2O_3 product is formed via the chemical reaction to form a ceramic glass component that efficiently stops the grain growth of the silicide at high temperatures (column 5, lines 69-75; column 6, lines 1-7); and the oxide layer not peeling under thermal cycling at about 1500°C (material of type III can withstand a temperature of 1650°C for more than 1000 hours;: column 5, lines 11-17; a material able to withstand an operating temperature of 1650°C does not deteriorate or peel over time; column 7, lines 45-50), protecting against further oxidation (column 8, claim 2), thereby increasing the operational life of said heating element.

Sekhar et al. teach a method of producing a heating element utilizing pure SiO_2 to reduce the impurities in the resulting heating element, increasing the working temperature of the heating element (column 16, lines 12-20), thereby producing a more efficient heating element. Sekhar further teaches the working temperature of the heating elements was increased in comparison to products using bentonite as a plasticizer, due to reduction of the impurity phase (column 16, lines 21-29).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the molybdenum-silicide-type heating element and method of producing of Schrewelius'145 with the teaching of the production of Al_2O_3 in addition to the $Mo(Si_{1-x}\ Al_x)_2$ of Schrewelius'959 to form a ceramic glass component that efficiently stops the grain growth of the silicide at high temperatures, protecting against further oxidation (column 8, claim 2), thereby increasing the operational life of said heating element. It would have further been obvious to one of ordinary skill in the art at the time of the invention was made to modify the Schrewelius'145-Schrewelius'959 molybdenum-silicide-type heating element and method of producing combination with the teaching of replacing bentonite with pure SiO_2 of Sekhar et al. to reduce the impurities in the resulting heating element, increasing the working temperature of the heating element, thereby producing a more efficient heating element thereof.

With respect to the limitation of the oxide layer not peeling from the surface of the heating element between room temperature and about 1500°C whereby heating oven contamination in the form of peeled heating element oxide layer particles in a heating oven containing the heating element is prevented, Schrewelius'145 discloses the use of

the alloys according to the invention in a temperature of 1600 to 1700°C (column 2, lines 28-30). Schrewelius'959 teaches a material of type III comprising Al_2O_3 that can withstand a temperature of 1650°C for more than 1000 hours (column 5, lines 11-17; column 6, lines 3-11) and a material able to withstand an operating temperature of 1650°C does not deteriorate or peel over time (column 7, lines 45-50). Sekhar teaches electrical heating element compositions and the comparison between using pure SiO_2 instead of bentonite (column 16, lines 11-29) to reduce the impurities in the resulting heating element, increasing the working temperature of the heating element. Sekhar further teaches the heating elements being tested at temperatures between 1200 °C and 1600 °C without any sign of deterioration (column 14, lines 28-40) with deterioration inherently including physical wear/break down of the composition of the heating element which would include peeling. Therefore since Schrewelius'145 discloses the use of the heating element device at device at 1600 to 1700°C, Schrewelius'959 teaches a material of type III comprising Al_2O_3 that can withstand a temperature of 1650°C for more than 1000 hours, and Sekhar teaches the replacement of a bentonite plasticizer with a pure SiO_2 plasticizer to remove impurities and prevent any sign of deterioration of the heating element at high operating temperatures, Schrewelius'145 in view of Schrewelius'959 and Sekhar fully meets "which oxide layer does not peel from the surface of the heating element under thermal cycling of the heating element between room temperature and about 1500°C, whereby heating oven contamination in the form of peeled heating element oxide layer particles in a heating oven containing the heating element is prevented" given its broadest reasonable interpretation.

12. Claims 2 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schrewelius (U.S. Patent No. 2,955,145) in view of Schrewelius (U.S. Patent No. 2,992,959) and Sekhar et al. (U.S. Patent No. 5,420,399) as applied to claims 1, 4-6, 8 and 9 above, and further in view of Chyung et al. (U.S. Patent No. 3,725,091).

The Schrewelius'145-Schrewelius'959-Sekhar molybdenum-silicide heating element and method of producing combination discloses all of the limitations, as previously set forth, except for wherein the SiO_2 being present in the mixture is a silicate and does not affect symmetry of molybdenum silicide crystal lattice; and wherein the silicate is mullite.

Chyung et al. a method for producing a heating element (column 1, lines 9-14; column 2, lines 10-16) wherein the SiO_2 is present in the mixture (column 3, lines 12-17) is a silicate mullite (i.e. mullite; $3Al_2O_3$ $2SiO_2$ inherently has SiO_2; is used; i.e. high temperature applications; column 48-52) and does not affect symmetry of molybdenum silicide crystal lattice (column 2, lines 65-68; column 3, lines 1-7, lines 57-64; column 10-11, claim 9) to provide an improved cermet material of high density, low porosity, good thermal conductivity, low electrical resistivity and good strength which is compatible with both metals and ceramics in terms of thermal expansion and bonding capability, thereby producing a more efficient heating element. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the Schrewelius'145-Schrewelius'959-Sekhar molybdenum-silicide heating element and method of producing combination with the mixture and teaching of the use thereof of

Chyung et al. to provide an improved cermet material of high density, low porosity, good thermal conductivity, low electrical resistivity and good strength which is compatible with both metals and ceramics in terms of thermal expansion and bonding capability, thereby producing a more efficient heating element.

13. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schrewelius (U.S. Patent No. 2,955,145) in view of Schrewelius (U.S. Patent No. 2,992,959), Sekhar et al. (U.S. Patent No. 5,420,399) and Chyung et al. (U.S. Patent No. 3,725,091) as applied to claims 2 and 10 above, and further in view of Sawamura et al. (U.S. Patent No. 5,756,215).

The Schrewelius'145-Schrewelius'959-Sekhar-Chyung molybdenum-silicide heating element and method of producing combination discloses all of the limitations, as previously set forth, except for the silicate being sillimanite instead of mullite.

Sawamura teaches that sillimanite is an equivalent structure known in the art (metal oxide comprising at least one of mullite or sillimanite; column 12, lines 40-45). Therefore because these two silicates were art-recognized equivalents at the time of the invention was made, one of ordinary skill in the art would have found it obvious to substitute sillimanite for mullite.

Remarks

14. The examiner respectfully incorporates by reference all previous Responses to Arguments/Remarks made by the examiner.

15. With respect to applicant's argument that Schrewelius'145 does not disclose the claimed molybdenum aluminum silicide material, the examiner respectfully disagrees. As the examiner previously noted in the last Office action, Schrewelius'145 discloses $(Mo_{1-y} M_y)(Si_{1-x} Al_x)_2$ and while the disclosure primarily focuses on the addition of a metal, M, to the composition, Schrewelius'145 explicitly anticipate no metal alloy, M, being present in the composition (the composition becoming $Mo(Si_{1-x} Al_x)_2$; column 1, lines 59-72) and further being combined with SiO_2 (both legs combined with a lower percentage of SiO_2; column 2, lines 31-40). Therefore, the Examiner maintains the position that Schrewelius'145 anticipates the molybdenum silicide material being $Mo(Si_{1-x} Al_x)_2$ having no metal, M, and combines the composition with SiO_2.

16. With respect to applicant's argument that Schrewelius'145 teaches away from using pure SiO_2, the examiner respectfully disagrees. Schrewelius'145 discloses a ceramic binding substance, predominantly being SiO_2 (column 2, lines 31-40) with bentonite being used as the binding substance (column 2, line71 - column 3, line 15). There is no disclosure or teaching to the ceramic binding substance not potentially being pure SiO_2 or such a substitution causing detrimental effects to the heating element composition, only to it being preferred to be predominantly SiO_2 or bentonite.

17. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., an outer surface layer of Al_2O_3) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification

are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

18. With respect to applicant's argument that none of the references relied upon discloses or suggests an Al_2O_3 outer surface layer, nor do any of the references even mention or appreciate the problem to which the present invention is directed - the peeling of a surface layer of Al_2O_3 upon subjection to thermal cycling of a heating element having such a surface layer", the examiner respectfully disagrees. While Schrewelius'959 does disclose the layer being a quartz glass or SiO_2 layer, Schrewelius'959 also disclose that during the final sintering process/operation, silica or mixed oxides are formed which fill up the remaining pores and form a surface film of SiO_2 (column 2, lines 28-32; column 4, lines 34-38). Schrewelius'959 further disclose the ceramic glass component being a product of Al_2O_3 and SiO_2 (see composition III; column 5, lines 11-25; column 6, lines 3-7), and with the previous mentioned disclosure, would inherently provide particles of Al_2O_3 to fill the pores of SiO_2. Furthermore, Schrewelius'959 discloses that a material of type III can withstand a temperature of 1650°C for more than 1000 hours (material III: column 5, lines 11-17) and a material able to withstand an operating temperature of 1650°C inherently does not deteriorate or peel over time (column 7, lines 45-50) or the structure would not be operating as disclosed. Furthermore, Sekhar teaches electrical heating element compositions and the comparison between using pure SiO_2 instead of bentonite (column 16, lines 11-29) to reduce the impurities in the resulting heating element, increasing the working temperature of the heating element. Sekhar further teaches the heating elements being

tested at temperatures between 1200 °C and 1600 °C without any sign of deterioration (column 14, lines 28-40) with deterioration inherently including physical wear/break down of the composition of the heating element which would include peeling. Therefore since Schrewelius'145 discloses the use of the heating element device at device at 1600 to 1700°C, Schrewelius'959 teaches a material of type III comprising Al_2O_3 that can withstand a temperature of 1650°C for more than 1000 hours, and Sekhar teaches the replacement of a bentonite plasticizer with a pure SiO_2 plasticizer to remove impurities and prevent any sign of deterioration of the heating element at high operating temperatures, Schrewelius'145 in view of Schrewelius'959 and Sekhar fully meets "which oxide layer does not peel from the surface of the heating element under thermal cycling of the heating element between room temperature and about 1500°C, whereby heating oven contamination in the form of peeled heating element oxide layer particles in a heating oven containing the heating element is prevented" given its broadest reasonable interpretation.

19. In response to applicant's argument that Sekhar et al. is directed to a different problem, that of providing oxidation resistance, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

20. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon

hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

21. With respect to applicant's argument that none of the references teach replacing bentonite with SiO_2, the examiner respectfully disagrees. Sekhar et al. teach a method of producing a heating element utilizing pure SiO_2 to reduce the impurities in the resulting heating element, increasing the working temperature of the heating element (column 16, lines 12-20), thereby producing a more efficient heating element. Sekhar further teaches the working temperature of the heating elements was increased in comparison to products using bentonite as a plasticizer, due to reduction of the impurity phase (column 16, lines 21-29). Therefore, the examiner maintains that Sekhar teaches the replacement of bentonite with pure SiO_2 as a plasticizer/additive and motivation, teaching and suggestion to do so.

Conclusion

22. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen J. Ralis whose telephone number is 571-272-6227. The examiner can normally be reached on Monday - Friday, 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tu Hoang can be reached on 571-272-4780. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Stephen J Ralis
Examiner
Art Unit 3742

SJR
January 23, 2008

TU BA HOANG
SUPERVISORY PATENT EXAMINER